This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a **Minor**, **Municipal** permit. The discharge results from the operation of a 0.058 MGD wastewater treatment plant. This permit action consists of updating the WQS and boilerplate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

1. Facility Name and Mailing Address: Waterford WWTF, P.O. Box 4000, Ashburn, VA 20146 — SIC Code: 4952

   Facility Location: 40024 Old Wheatland Road, Waterford, VA 20197 — County: Loudoun

   Facility Contact Name: Todd Danielson — Telephone Number: 571-291-7835

2. Permit No.: VA0060500 — Expiration Date of previous permit: October 19, 2008

   Other VPDES Permits associated with this facility: None.

   Other Permits associated with this facility: None.

   E2/E3/E4 Status: N/A

3. Owner Name: Loudoun Water

   Owner Contact/Title: Dale Hammes/General Manager — Telephone Number: 571-291-7700

4. Application Complete Date: 05/22/2008

   Permit Drafted By: Susan Oakes — Date Drafted: September 3, 2008

   Draft Permit Reviewed By: Alison Thompson — Date Reviewed: October 6, 2008

   Public Comment Period: Start Date: November 20, 2008 — End Date: December 19, 2008

5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination

Receiving Stream Name:	South Fork Catoctin Creek		
Drainage Area at Outfall:	31.98 sq.mi.	River Mile:	1.59
Stream Basin:	Potomac	Subbasin:	Potomac
Section:	10b	Stream Class:	III
Special Standards:	None.	Waterbody ID:	VAN-A02R
7Q10 Low Flow:	0.14 MGD	7Q10 High Flow:	1.6 MGD
1Q10 Low Flow:	0.12 MGD	1Q10 High Flow:	1.1 MGD
Harmonic Mean Flow:	2.5 MGD	30Q5 Flow:	0.65 MGD
303(d) Listed:	Yes	30Q10 Flow:	0.28 MGD
TMDL Approved:	Yes	Date TMDL Approved:	May 31, 2002

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

   - ✓ State Water Control Law
   - ✓ Clean Water Act
   - ✓ VPDES Permit Regulation
   - ✓ EPA NPDES Regulation
   - ___ EPA Guidelines
   - ✓ Water Quality Standards
   - ___ Other

7. Licensed Operator Requirements: Class III

8. Reliability Class: Class II

9. Permit Characterization:

___	Private	✓	Effluent Limited	___	Possible Interstate Effect
___	Federal	✓	Water Quality Limited	___	Compliance Schedule Required
___	State	___	Toxics Monitoring Program Required	___	Interim Limits in Permit
✓	POTW	___	Pretreatment Program Required	___	Interim Limits in Other Document
✓	TMDL				

10. Wastewater Sources and Treatment Description:

The treatment process consists of a Raw Pit, Distribution Box A, two aerated lagoons in series (lined with bentonite clay), Distribution Box B, Distribution Box C, Distribution Box D, two secondary clarifiers, two chlorine contact tanks, two tablet dechlorination units and post aeration. The WWTF serves the Waterford community with a population of approximately 275.

Raw sewage enters the site via the Raw Pit which then travels to Distribution Box A. From Box A, influent wastewater can be directed to Lagoon 1, Lagoon 2 or both. Staff stated that influent wastewater is mainly directed to Lagoon 1 but is directed to Lagoon 2 if Lagoon 1 is being worked on. Wastewater from Lagoon 1 is discharged to Lagoon 2 via Distribution Box B; wastewater from Lagoon 2 is distributed to Distribution Box C where Alum is added. Distribution Box D can be used to return wastewater from Lagoon 2 to Lagoon 1 for recirculation if needed. From Distribution Box C wastewater flows to a manhole where polymer is added. Wastewater is then distributed to the two secondary clarifiers, then on to the two 4-tube chlorine tablet tube feeders and baffled contact tanks followed by two tablet dechlorination units, and post aeration. The final effluent is discharged through a shore-based headwall fitted with a flapper valve to prevent high receiving stream levels from backing up into the treatment system.

When the facility does discharge, the average flow per discharge is 0.046 MGD with an average duration of discharge of 5 days.

See **Attachment 2** for a facility schematic/diagram.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic Wastewater	See Item 10 above.	0.058 MGD	**39° 11' 30"** N **77° 37' 00"** W

See **Attachment 3** for Waterford Quad (DEQ #215A) topographic map.

11. Sludge Treatment and Disposal Methods:

Because this treatment works is a lagoon, sludge is anaerobically digested at the bottom. Sludge will slowly accumulate over time, and will be removed for treatment and disposal when sludge depth negatively affects wastewater treatment or the lagoon is closed.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE 2	
1aSOC000.01 (Biological Monitoring Station)	Located just above the confluence of North Fork Catoctin Creek and South Fork Catoctin Creek.
1aCAX004.57 (Ambient Monitoring Station)	Located on Catoctin Creek at the Route 663 bridge crossing.
1aSOC001.66 (Ambient and Sediment Monitoring Station)	Located at Route 698.

13. Material Storage:

TABLE 3 - Material Storage		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Alum	5 Drums	Stored in locked Alum Building
Chlorine Tablets	10-15 buckets	Stored in locked Polymer/Chlorine Storage building
Polymer	2/50 lb. bags	Stored in locked Polymer/Chlorine Storage building
Dechlorination Tablets	15-20 Buckets	Stored in locked Polymer/Chlorine Storage building

14. Site Inspection: Performed by Susan Oakes and Sharon Mack on June 12, 2008 (see **Attachment 4**).

15. Receiving Stream Water Quality and Water Quality Standards:

a) Ambient Water Quality Data

Sufficient excursions from the instantaneous *E. coli* bacteria criterion (3 of 9 samples - 33.3%) were recorded at DEQ's ambient water quality monitoring station (1aSOC001.66) at the Route 698 crossing to assess this stream segment as not supporting of the recreation use goal for the 2008 water quality assessment (see Planning Statement located in the permit file).

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment.

In addition, this assessment unit was noted with an observed effect for total phosphorus for the 2006 Integrated Assessment. While nutrients will not be assessed until nutrient standards are adopted for free-flowing streams, the observed effect will remain due to the previous assessment. In 2006, three of 15 samples (20.0%) exceeded the total phosphorus screening value of 0.20 mg/L.

b) Receiving Stream Water Quality Criteria

Part IX of 9 VAC 25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream South Fork Catoctin Creek is located within Section 10 b of the Potomac River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 5 details other water quality criteria applicable to the receiving stream.

Ammonia:
Staff has re-evaluated the receiving stream ambient monitoring data for pH and temperature and finds no significant differences from the data used to establish ammonia criteria and subsequent effluent limits in the previous permit. Therefore, the previously established pH and temperature values will be carried forward as part of this reissuance process (see **Attachment 5**).

Metals Criteria:
The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/l calcium carbonate). There is no new hardness data available for the receiving stream; therefore, the hardness value of 61.7 mg/l from the previous permit cycle is carried forward with this permit cycle. The hardness-dependent metals criteria shown in **Attachment 5** are based on this value.

Bacteria Criteria: The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

1) *E. coli* bacteria per 100 ml of water shall not exceed the following:

	Geometric Mean[1]	Single Sample Maximum
Freshwater *E. coli* (N/100 ml)	126	235

[1]For two or more samples [taken during any calendar month].

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, South Fork Catoctin Creek, is located within Section 10 b of the Potomac River Basin. This section has no special standard designations.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: Loggerhead Shrike. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, protect the threatened and endangered species found near the discharge (the Threatened and Endangered Species printout is located in the permit file).

16. Antidegradation (9 VAC 25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream was classified as Tier 1 previously, based on ammonia limits being developed to meet Water Quality Standards and the fecal coliform TMDL for the South Fork Catoctin Creek, and continues during this permit cycle. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development :

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are then calculated on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:
Effluent data obtained from DMRs from January 2003 through May 2008 have been reviewed and determined to be suitable for evaluation. During this timeframe, the facility had three exceedances for the TSS concentration maximum, one exceedance for the TSS quantity average, once exceedance for the TSS quantity maximum, one exceedance for BOD_5 quantity maximum, and one exceedance for ammonia concentration average.

The following pollutants require a wasteload allocation analysis*:* Ammonia and Total Residual Chlorine.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f) (Q_s)] - [(C_s) (f) (Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- f = Decimal fraction of critical flow from mixing evaluation
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- C_s = Mean background concentration of parameter in the receiving stream.

The Water Quality Standards contain two distinct mixing zone requirements. The first requirement is general in nature and requires the "use of mixing zone concepts in evaluating permit limits for acute and chronic standards in 9 VAC 25-260-140.B". The second requirement is specific and establishes special restrictions for regulatory mixing zones "established by the Board".

The Department of Environmental Quality uses a simplified mixing model to estimate the amount of mixing of a discharge with the receiving stream within specified acute and chronic exposure periods. The simplified model contains the following assumptions and approximations:

– The effluent enters the stream from the bank, either via a pipe, channel or ditch.
- The effluent velocity isn't significantly greater (no more than 1 - 2 ft/sec greater) than the stream velocity.
- The receiving stream is much wider than its depth (width at least ten times the depth).
- Diffusive mixing in the longitudinal direction (lengthwise) is insignificant compared with advective transport (flow).
- Complete vertical mixing occurs instantaneously at the discharge point. This is assumed since the stream depth is much smaller than the stream width.
- Lateral mixing (across the width) is a linear function of distance downstream.
- The effluent is neutrally buoyant (e.g. the effluent discharge temperature and salinity are not significantly different from the stream's ambient temperature and salinity).
- Complete mix is determined as the point downstream where the variation in concentration is 20% or less across the width and depth of the stream.
- The velocity of passing and drifting organisms is assumed equal to the stream velocity.

If it is suitably demonstrated that a reasonable potential for lethality or chronic impacts within the physical mixing area doesn't exist, then the basic complete mix equation, with 100% of the applicable stream flow, is appropriate. If the mixing analysis determines there is a potential for lethality or chronic impacts within the physical mixing area, then the proportion of stream flow that has mixed with the effluent over the allowed exposure time is used in the basic complete mix equation. As such, the wasteload allocation equation is modified to account for the decimal fraction of critical flow (f).

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a WWTP treating sewage and total residual chlorine may be present since chlorine is used for disinfection. As such, **Attachments 5 and 6** detail the WLA derivations and mixing analysis results respectively for these pollutants.

c) Effluent Limitations Toxic Pollutants, Outfall 001

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

While the previously established pH and temperature values were used to re-calculate ammonia criteria, the ammonia criteria for this reissuance differ from those criteria established with the previous reissuance due to the 2003 change in Water Quality Standards. Although the newly calculated ammonia criteria allows for a relaxation of the ammonia effluent limitations, the facility has been meeting the existing ammonia limits, therefore, staff proposes to carry forward the current limits.

The monthly average for ammonia as nitrogen (June to November) is 14 mg/L and the weekly average limit is 21 mg/L (see **Attachment 7**).

2) Total Residual Chlorine:

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and the mixing allowance. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. As with ammonia, the TRC criteria differs from the criteria established with the previous reissuance due to the 2003 change in Water Quality Standards. The newly calculated TRC criteria results in a tightening of the TRC effluent limitations, therefore, a monthly average of 0.030 mg/L and a weekly average limit of 0.030 mg/L are proposed for this discharge (see **Attachment 8**).

3) Metals/Organics:

No limits are needed.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), biochemical oxygen demand-5 day (BOD_5), total suspended solids (TSS), and pH limitations are proposed.

Dissolved Oxygen and BOD_5 limitations are based on the stream modeling conducted in October 1973 (**Attachment 9**) and are set to meet the water quality criteria for D.O. in the receiving stream.

TSS limits are based on the Federal Secondary Effluent Guidelines.

pH limitations are set at the water quality criteria.

It is staff's best professional judgment that a limit for *E. coli* continue in the permit to verify that the chlorine is providing adequate disinfection of the effluent and protection of the water quality standards (9 VAC25-260-170).

e) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9 VAC 25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries.

The State Water Control Board adopted new Water Quality Criteria for the Chesapeake Bay in March 2005. In addition to the Water Quality Standards, there are three new regulations that necessitate nutrient limitations or monitoring in VPDES permits:

- 9 VAC 25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed*.

- 9 VAC 25-720 – *Water Quality Management Plan Regulation* sets forth TN and TP maximum wasteload allocations for facilities with design flows of $\geq$0.5 mgd limiting the mass loading from these discharges.

- 9 VAC 25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia* was approved by the State Water Control Board on September 6, 2006 and became effective January 1, 2007.

Total Phosphorus monitoring has been added to protect the Water Quality Standards of the Potomac River Basin because the 2006 Integrated Assessment Report noted an observed effect for Total Phosphorus with three of 15 samples exceeding the Total Phosphorus screening value of 0.20 mg/L (see Planning Statement located in the permit file).

f) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, BOD_5, Total Suspended Solids, Ammonia, pH, Dissolved Oxygen, Total Residual Chlorine, *E. coli*, and Total Phosphorus.

The limit for Total Suspended Solids is based on Federal Effluent Guidelines.

The monitoring for Total Phosphorus is based on best professional judgment.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 3.785.

The permittee will also be required to demonstrate the facility's 85% removal efficiency on an annual basis according to the Federal Secondary Effluent Standards (40 CFR part 133).

Because the 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates an observed effect for total phosphorus, it is staff's best professional judgment that monitoring for Total Phosphorus be included in this permit to protect the Water Quality Standards of the Potomac River Basin.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.058 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
BOD_5	3,5	24 mg/L 5.3 kg/d	36 mg/L 7.9 kg/d	NA	NA	1/W	4H-C
Total Suspended Solids (TSS)	2	30 mg/L 6.6 kg/d	45 mg/L 9.9 kg/d	NA	NA	1/W	4H-C
DO	3, 5	NA	NA	6.8 mg/L	NA	1/D	Grab
Ammonia, as N (mg/L), (Jun-Nov)	3	14 mg/L	21 mg/L	NA	NA	1/W	4H-C
E. coli (Geometric Mean)	3	126 n/100mls	NA	NA	NA	2/M	Grab
Total Residual Chlorine (after contact tank)	2, 3, 4	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	3	0.030 mg/L	0.030 mg/L	NA	NA	1/D	Grab
Total Phosphorus	2, 6	NA	NA	NA	NL	1/M	4H-C
Influent BOD_5 (85% removal efficiency demonstration)	1	NL	NA	NA	NA	1/Y	4H-C
Influent TSS (85% removal efficiency demonstration)	1	NL	NA	NA	NA	1/Y	4H-C

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Stream Model- Attachment 9
6. 9 VAC 25-40 (Nutrient Regulation)

MGD = Million gallons per day.
N/A = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
1/W = Once every week.
3/D = Three times every day.
1/Y = Once every year.
1/3M = Once every three months.
2/M = Twice every month

4H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 4-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of four (4) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum four (4) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ≥10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

20. Other Permit Requirements :

a) Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.
A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more than 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions :

a) 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b) Indirect Dischargers. Required by VPDES Permit Regulation, 9 VAC 25-31-280 B.9 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. The original O&M was approved in 1979. Although addendums and revised pages were added to the original O&M in 2002 and 2003, the O&M needs a thorough review as names, phone numbers, test methods, operator requirements, etc., have changed. By no later than March 22, 2009, the permittee shall submit for approval a revised Operations and Maintenance (O&M) Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators. This facility requires a Class III operator.

f) Reliability Class. The Sewage Collection and Treatment Regulation at 9 VAC 25-790 requires sewerage works achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. The facility is required to meet a reliability Class of II.

g) Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

h) Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P., 220.B.2., and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

i) Nutrient Reopener. 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

22. Changes to the Permit from the Previously Issued Permit:

a) Special Conditions:
- None.

b) Monitoring and Effluent Limitations:
- Total Phosphorus monitoring has been added to protect the Water Quality Standards of the Potomac River Basin because the 2006 Integrated Assessment Report noted an observed effect for Total Phosphorus with three of 15 samples exceeding the Total Phosphorus screening value of 0.20 mg/L.
- TRC effluent limitations have been changed from 0.040 mg/L monthly average and 0.048 mg/L weekly average to 0.030 mg/L monthly and weekly average.
- Fecal coliform monitoring and effluent limitation has been removed because adequate disinfection is demonstrated through the *E. coli* monitoring and effluent limitation requirement.

23. Variances/Alternate Limits or Conditions:

None.

24. Public Notice Information:

First Public Notice Date: November 19, 2008 Second Public Notice Date: November 26, 2008

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3863, saoakes@deq.virginia.gov. See **Attachment 10** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

25. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):
The receiving stream, South Fork Catoctin Creek is on the current 303(d) list for the following impairments:

- Recreational Use – A fecal coliform TMDL for the South Fork Catoctin Creek watershed was developed and approved by the U.S. EPA on May 31, 2002. The SWCB approved the TMDL on June 17, 2004. The sources of fecal coliform bacteria requiring reductions are livestock and wildlife waste delivered directly to the stream, and human contributions from straight pipes. A WLA was given to Waterford WWTP of **1.60E+11 cfu/year of fecal coliform bacteria**. The allocation equates to the permit effluent limitation of 200 cfu/100 mls (see Staff Comments below and the Planning Statement and TMDL excerpts located in the permit file).

- Aquatic Life Use – No TMDL Developed. TMDL Due Date 2020 (however, there are several upstream segments of the South Fork Catoctin Creek that also have aquatic life use impairments due to poor health in the benthic biological community). Thus a TMDL will be developed for all the contiguous benthic impairments on South Fork Catoctin Creek by the TMDL Due Date of 2016.

TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

26. Additional Comments:
Previous Board Action(s): None.

Staff Comments: With this permit reissuance, staff are proposing to remove the effluent limit and monitoring for fecal coliform and rely on the limitation and monitoring of *E. coli* to demonstrate adequate disinfection and compliance with the TMDL. The bacteriological indicator in fresh water was changed from fecal coliform bacteria to *E. coli*. This change was incorporated into the WQS in 2003. The transitional period for phasing in the *E. coli* criteria ended June 30, 2008. Now, only the *E. coli* bacteria criteria apply in free-flowing streams; *E. coli* is the parameter now used for TMDLs addressing recreational use impairments. A primary purpose for including fecal coliform effluent limits and monitoring requirements in VPDES permits is to demonstrate adequate disinfection. The limit and associated monitoring requirement for *E. coli* now demonstrates adequate disinfection and compliance with the TMDL.

Public Comment: No comments were received during the public notice

EPA Checklist: The checklist can be found in **Attachment 11**.

Waterford WWTF
Fact Sheet Attachments – Table of Contents
VA0060500

Flow Frequency Determination (updated)
Waterford WWTF VA0060500

Catoctin Creek at Taylorstown, VA (#01638480):

Drainage Area = 89.6 mi^2

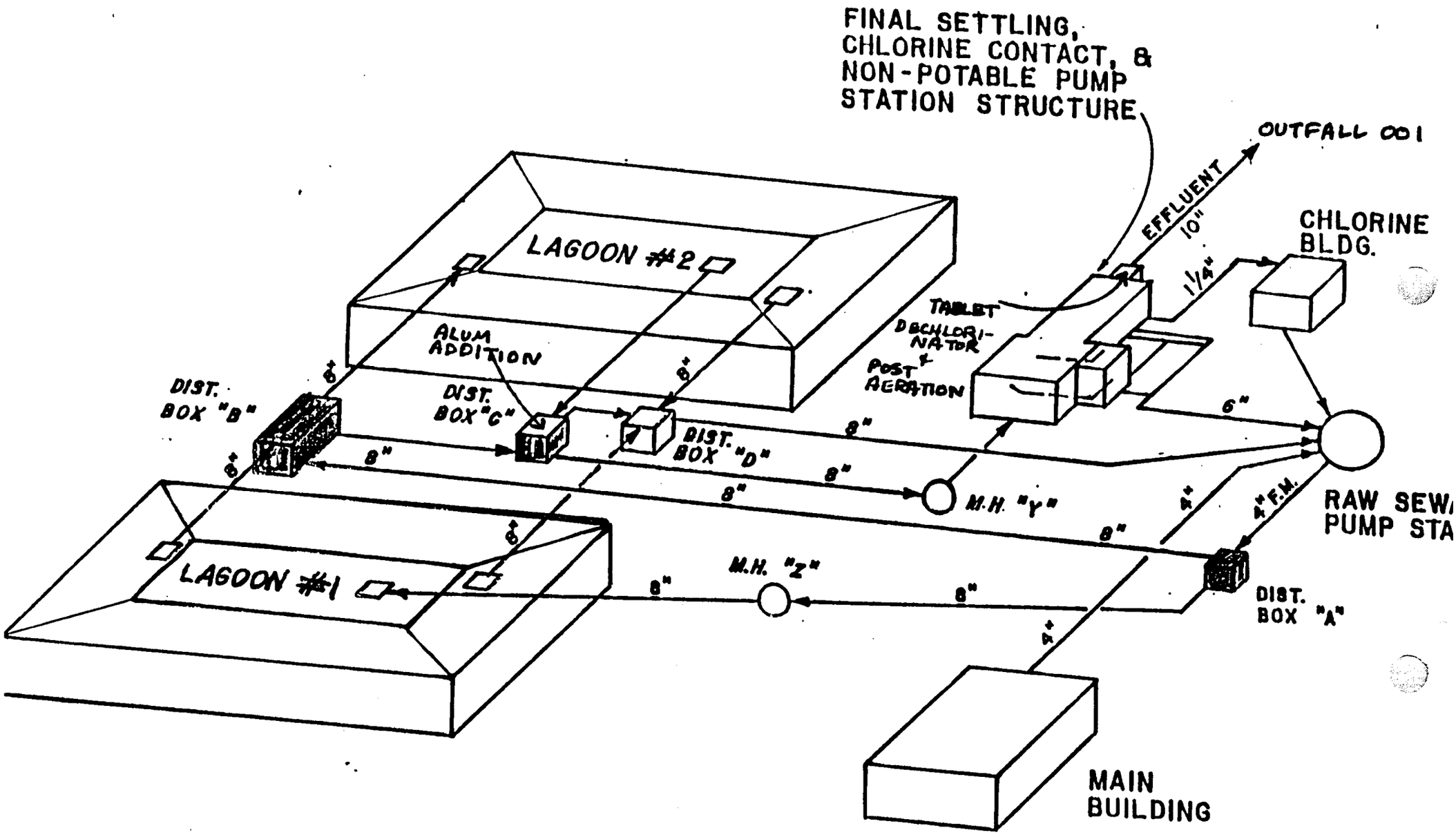
Low flow		High flow	
1Q10 = 0.52 cfs	0.34 mgd	1Q10 = 4.9 cfs	3.2 mgd
7Q10 = 0.63 cfs	0.41 mgd	7Q10 = 7.0 cfs	4.5 mgd
30Q5 = 2.8 cfs	1.8 mgd	30Q10 = 12 cfs	7.8 mgd
30Q10 = 1.5 cfs	0.97 mgd	HM = 11 cfs	7.1 mgd

South Fork Catoctin Creek at discharge point:

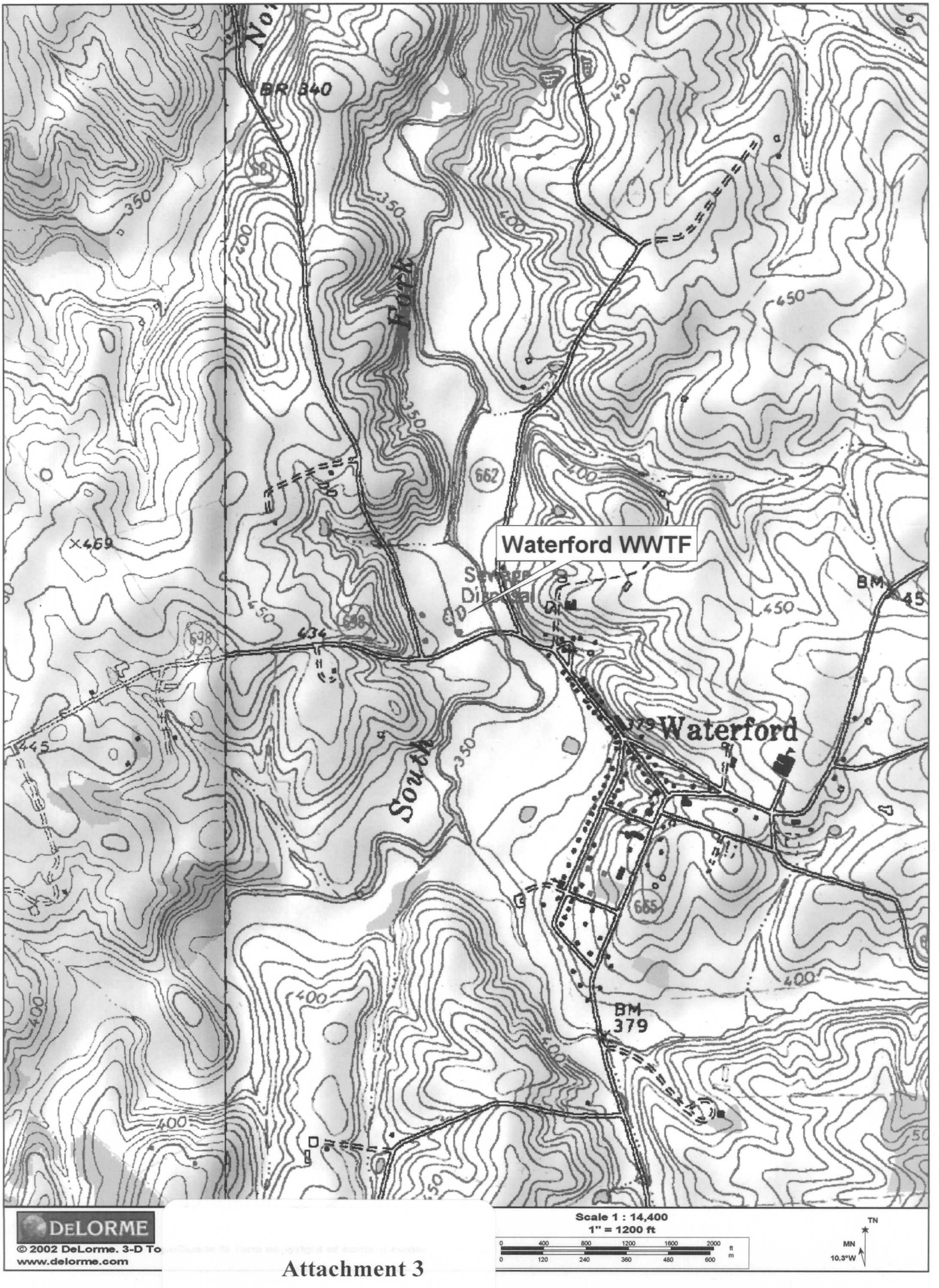
Drainage Area = 31.98 mi^2

Low flow		High flow	
1Q10 = 0.19 cfs	0.12 mgd	1Q10 = 1.7 cfs	1.1 mgd
7Q10 = 0.22 cfs	0.14 mgd	7Q10 = 2.5 cfs	1.6 mgd
30Q5 = 1.0 cfs	0.65 mgd	30Q10 = 4.3 cfs	2.8 mgd
30Q10 = 0.43 cfs	0.28 mgd	HM = 3.9 cfs	2.5 mgd

(Gaging station data December – May 1971 – 2003)



Attachment 2 - Wastewater Treatment Plant Diagram



Attachment 3

June 16, 2008
MEMORANDUM

TO: Waterford Wastewater Treatment Facility Permit File (VA0060500)

FROM: Susan Oakes – NVRO Water Permitting

SUBJECT: Reissuance Site Inspection
VA0060500

This memo documents the conditions and findings observed at the Waterford Wastewater Treatment Facility (VA0060500) during the permit reissuance inspection conducted on June 12, 2008.

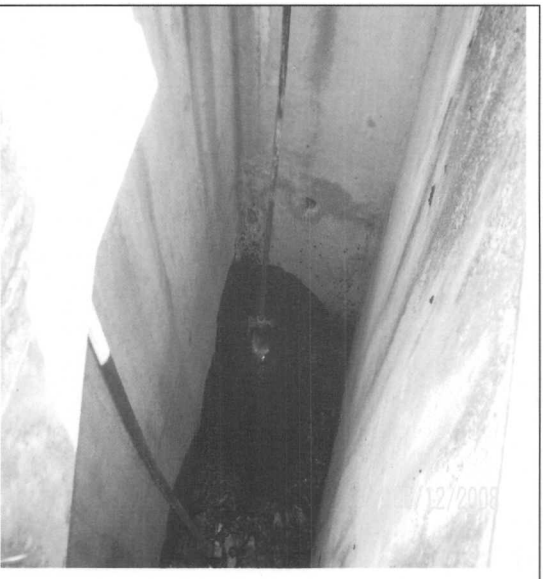
The treatment process consists of a Raw Pit, Distribution Box A, two aerated lagoons in series (lined with bentonite clay), Distribution Box B, Distribution Box C, Disbribution Box D, two secondary clarifiers, two chlorine contact tanks, two tablet dechlorination units and post aeration.

Raw sewage enters the site via the Raw Pit which then travels to Distribution Box A. From Box A, influent wastewater can be directed to Lagoon 1, Lagoon 2 or both. Staff stated that influent wastewater is mainly directed to Lagoon 1 but is directed to Lagoon 2 if Lagoon 1 is being worked on. Wastewater from Lagoon 1 is discharged to Lagoon 2; wastewater from Lagoon 2 is distributed to Distribution Box C where Alum is added. From Distribution Box C wastewater flows to a manhole where polymer is added. Wastewater is then distributed to the two secondary clarifiers, then on to the two 4-tube chlorine tablet tube feeders and baffled contact tanks followed by two tablet dechlorination units, and post aeration. The final effluent is discharged through a shore-based headwall fitted with a flapper valve to prevent high receiving stream levels from backing up into the treatment system.

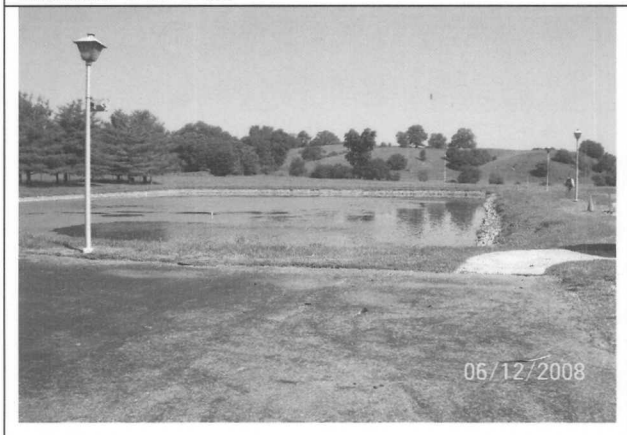
When the facility does discharge, the average flow per discharge is 0.046 MGD with an average duration of discharge of 5 days.

At the time of the inspection the facility was discharging. The effluent was clear however the receiving stream was turbid with a muddy brown color due to recent rains and runoff. The effluent pipe and headwall were in good condition and there were no obvious signs of problems. Upstream from the outfall the stream was slow moving and murky with evidence of bank erosion on the opposite side from the outfall. A sandy area in the middle of the stream divides the flow from upstream and the discharge point. The stream then merges and the flow picks up speed. This area is murky but looking downstream, there is another stream divide this time the split travels on either side of a rocky area. The water from this point appears clear. Small minnows were observed near the outfall area, however after the downstream merge, cows were noted in the stream.

Influent Wet Well

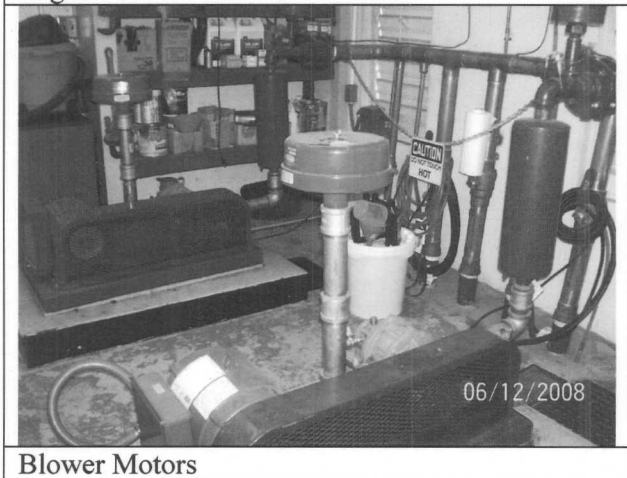


Raw Sewage Wet Well

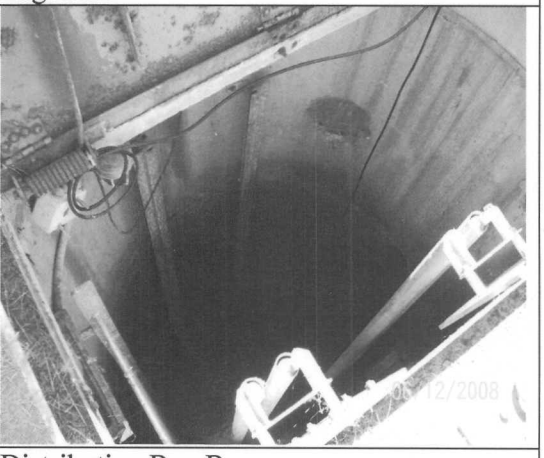


Lagoon 1

Lagoon 2

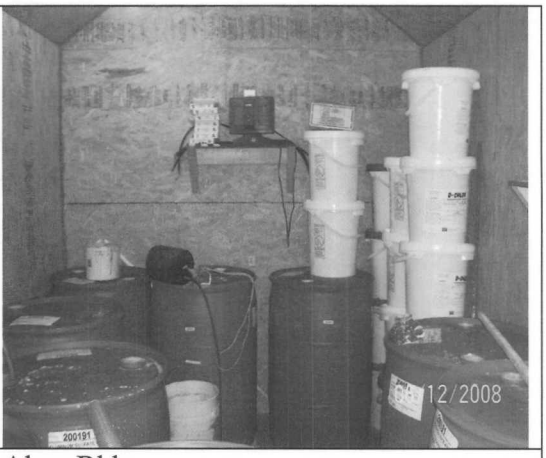


Blower Motors

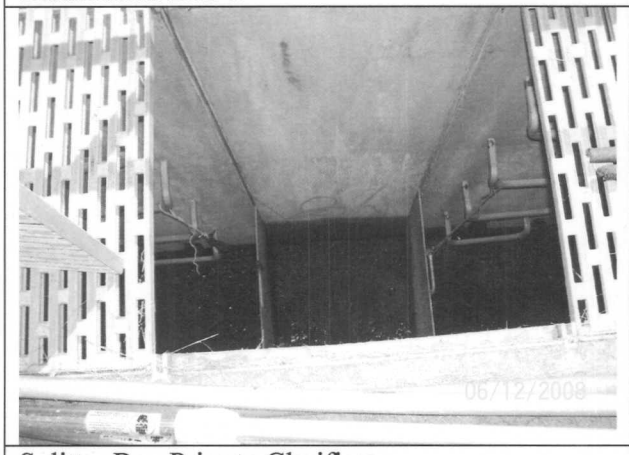


Distribution Box B

Distribution Box C

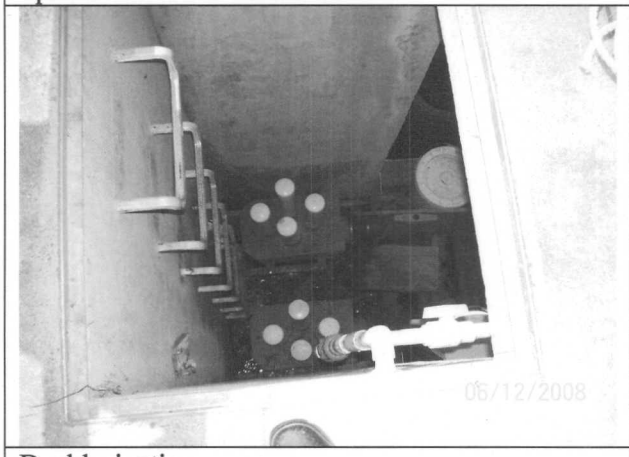


Alum Bldg.



Splitter Box Prior to Clarifiers

Clarifiers Effluent to Chlorination

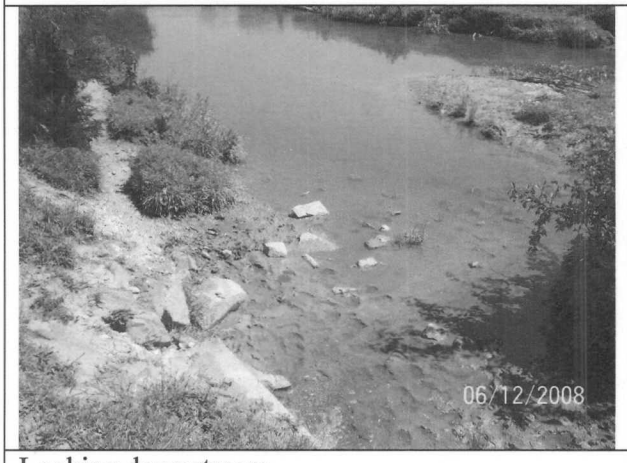


Dechlorination

Chlor/Dechlor

Headwall/Outfall

Outfall Flapper Valve



Looking downstream

Cows downstream from outfall

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Waterford WWTF Permit No.: VA0060500

Receiving Stream: South Fork Catoctin Creek Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO3) =	61.7	mg/L	1Q10 (Annual) =	0.12	MGD	Annual - 1Q10 Mix =	100	%	Mean Hardness (as CaCO3) =		mg/L
90% Temperature (Annual) =	24	deg C	7Q10 (Annual) =	0.14	MGD	- 7Q10 Mix =	100	%	90% Temp (Annual) =		deg C
90% Temperature (Wet season) =	14.3	deg C	30Q10 (Annual) =	0.28	MGD	- 30Q10 Mix =	100	%	90% Temp (Wet season) =		deg C
90% Maximum pH =	7.5	SU	1Q10 (Wet season) =	1.1	MGD	Wet Season - 1Q10 Mix =	100	%	90% Maximum pH =		SU
10% Maximum pH =		SU	30Q10 (Wet season)	2.8	MGD	- 30Q10 Mix =	100	%	10% Maximum pH =		SU
Tier Designation (1 or 2) =	1		30Q5 =	0.65	MGD				Discharge Flow =	0.058	MGD
Public Water Supply (PWS) Y/N? =	n		Harmonic Mean =	2.5	MGD						
Trout Present Y/N? =	n		Annual Average =	0	MGD						
Early Life Stages Present Y/N? =	y										

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	2.7E+03	--	--	na	3.3E+04	--	--	--	--	--	--	--	--	--	--	na	3.3E+04
Acrolein	0	--	--	na	7.8E+02	--	--	na	9.5E+03	--	--	--	--	--	--	--	--	--	--	na	9.5E+03
Acrylonitrile[C]	0	--	--	na	6.6E+00	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
Aldrin [C]	0	3.0E+00	--	na	1.4E-03	9.2E+00	--	na	6.2E-02	--	--	--	--	--	--	--	--	9.2E+00	--	na	6.2E-02
Ammonia-N (mg/l) (Yearly)	0	5.84E+01	5.02E+00	na	--	1.8E+02	2.9E+01	na	--	--	--	--	--	--	--	--	--	1.8E+02	2.9E+01	na	--
Ammonia-N (mg/l) (High Flow)	0	5.84E+01	7.09E+00	na	--	1.2E+03	3.5E+02	na	--	--	--	--	--	--	--	--	--	1.2E+03	3.5E+02	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.3E+06	--	--	--	--	--	--	--	--	--	--	na	1.3E+06
Antimony	0	--	--	na	4.3E+03	--	--	na	5.2E+04	--	--	--	--	--	--	--	--	--	--	na	5.2E+04
Arsenic	o	3.4E+02	1.5E+02	na	--	1.0E+03	5.1E+02	na	--	--	--	--	--	--	--	--	--	1.0E+03	5.1E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	7.1E+02	--	--	na	3.1E+04	--	--	--	--	--	--	--	--	--	--	na	3.1E+04
Benzidine[C]	0	--	--	na	5.4E-03	--	--	na	2.4E-01	--	--	--	--	--	--	--	--	--	--	na	2.4E-01
Benzo (a) anthracene [C]	0	--	--	na	4.9E-01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Benzo (b) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Benzo (k) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Benzo (a) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	2.1E+06	--	--	--	--	--	--	--	--	--	--	na	2.1E+06
Bromoform [C]	0	--	--	na	3.6E+03	--	--	na	1.6E+05	--	--	--	--	--	--	--	--	--	--	na	1.6E+05
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	6.3E+04	--	--	--	--	--	--	--	--	--	--	na	6.3E+04
Cadmium	0	1.5E+00	5.9E-01	na	--	4.5E+00	2.0E+00	na	--	--	--	--	--	--	--	--	--	4.5E+00	2.0E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	4.4E+01	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Chlordane [C]	0	2.4E+00	4.3E-03	na	2.2E-02	7.4E+00	1.5E-02	na	9.7E-01	--	--	--	--	--	--	--	--	7.4E+00	1.5E-02	na	9.7E-01
Chloride	0	8.6E+05	2.3E+05	na	--	2.6E+06	7.9E+05	na	--	--	--	--	--	--	--	--	--	2.6E+06	7.9E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	5.8E+01	3.8E+01	na	--	--	--	--	--	--	--	--	--	5.8E+01	3.8E+01	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.6E+05	--	--	--	--	--	--	--	--	--	--	na	2.6E+05

Attachment 5

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	3.4E+02	--	--	na	1.5E+04	--	--	--	--	--	--	--	--	--	--	na	1.5E+04
Chloroform [C]	0	--	--	na	2.9E+04	--	--	na	1.3E+06	--	--	--	--	--	--	--	--	--	--	na	1.3E+06
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	5.2E+04	--	--	--	--	--	--	--	--	--	--	na	5.2E+04
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.9E+03	--	--	--	--	--	--	--	--	--	--	na	4.9E+03
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	2.5E-01	1.4E-01	na	--	--	--	--	--	--	--	--	--	2.5E-01	1.4E-01	na	--
Chromium III	0	2.8E+02	3.8E+01	na	--	8.5E+02	1.3E+02	na	--	--	--	--	--	--	--	--	--	8.5E+02	1.3E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	4.9E+01	3.8E+01	na	--	--	--	--	--	--	--	--	--	4.9E+01	3.8E+01	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	4.9E-01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Copper	0	5.9E+00	4.4E+00	na	--	1.8E+01	1.5E+01	na	--	--	--	--	--	--	--	--	--	1.8E+01	1.5E+01	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	6.8E+01	1.8E+01	na	2.6E+06	--	--	--	--	--	--	--	--	6.8E+01	1.8E+01	na	2.6E+06
DDD [C]	0	--	--	na	8.4E-03	--	--	na	3.7E-01	--	--	--	--	--	--	--	--	--	--	na	3.7E-01
DDE [C]	0	--	--	na	5.9E-03	--	--	na	2.6E-01	--	--	--	--	--	--	--	--	--	--	na	2.6E-01
DDT [C]	0	1.1E+00	1.0E-03	na	5.9E-03	3.4E+00	3.4E-03	na	2.6E-01	--	--	--	--	--	--	--	--	3.4E+00	3.4E-03	na	2.6E-01
Demeton	0	--	1.0E-01	na	--	--	3.4E-01	na	--	--	--	--	--	--	--	--	--	--	3.4E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	4.9E-01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.5E+05	--	--	--	--	--	--	--	--	--	--	na	1.5E+05
Dichloromethane (Methylene Chloride) [C]	0	--	--	na	1.6E+04	--	--	na	7.1E+05	--	--	--	--	--	--	--	--	--	--	na	7.1E+05
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	2.1E+05	--	--	--	--	--	--	--	--	--	--	na	2.1E+05
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	3.2E+04	--	--	--	--	--	--	--	--	--	--	na	3.2E+04
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	3.2E+04	--	--	--	--	--	--	--	--	--	--	na	3.2E+04
3,3-Dichlorobenzidine[C]	0	--	--	na	7.7E-01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dichlorobromomethane [C]	0	--	--	na	4.6E+02	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
1,2-Dichloroethane [C]	0	--	--	na	9.9E+02	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	2.1E+05	--	--	--	--	--	--	--	--	--	--	na	2.1E+05
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.7E+06	--	--	--	--	--	--	--	--	--	--	na	1.7E+06
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	3.9E+02	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04
Dieldrin [C]	0	2.4E-01	5.6E-02	na	1.4E-03	7.4E-01	1.9E-01	na	6.2E-02	--	--	--	--	--	--	--	--	7.4E-01	1.9E-01	na	6.2E-02
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.5E+06	--	--	--	--	--	--	--	--	--	--	na	1.5E+06
Di-2-Ethylhexyl Phthalate [C]	0	--	--	na	5.9E+01	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.8E+04	--	--	--	--	--	--	--	--	--	--	na	2.8E+04
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	3.5E+07	--	--	--	--	--	--	--	--	--	--	na	3.5E+07
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.5E+05	--	--	--	--	--	--	--	--	--	--	na	1.5E+05
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.7E+05	--	--	--	--	--	--	--	--	--	--	na	1.7E+05
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	9.3E+03	--	--	--	--	--	--	--	--	--	--	na	9.3E+03
2,4-Dinitrotoluene [C]	0	--	--	na	9.1E+01	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	--	--	--	--	--	--	--	--	na	na
1,2-Diphenylhydrazine[C]	0	--	--	na	5.4E+00	--	--	na	2.4E+02	--	--	--	--	--	--	--	--	--	--	na	2.4E+02
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	6.8E-01	1.9E-01	na	2.9E+03	--	--	--	--	--	--	--	--	6.8E-01	1.9E-01	na	2.9E+03
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	6.8E-01	1.9E-01	na	2.9E+03	--	--	--	--	--	--	--	--	6.8E-01	1.9E-01	na	2.9E+03
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.9E+03	--	--	--	--	--	--	--	--	--	--	na	2.9E+03
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	2.6E-01	1.2E-01	na	9.9E+00	--	--	--	--	--	--	--	--	2.6E-01	1.2E-01	na	9.9E+00
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	9.9E+00	--	--	--	--	--	--	--	--	--	--	na	9.9E+00

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	3.5E+05	--	--	--	--	--	--	--	--	--	--	na	3.5E+05
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.7E+05	--	--	--	--	--	--	--	--	--	--	na	1.7E+05
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	3.4E-02	na	--	--	--	--	--	--	--	--	--	--	3.4E-02	na	--
Heptachlor [c]	0	5.2E-01	3.8E-03	na	2.1E-03	1.6E+00	1.3E-02	na	9.3E-02	--	--	--	--	--	--	--	--	1.6E+00	1.3E-02	na	9.3E-02
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	na	1.1E-03	1.6E+00	1.3E-02	na	4.9E-02	--	--	--	--	--	--	--	--	1.6E+00	1.3E-02	na	4.9E-02
Hexachlorobenzene[c]	0	--	--	na	7.7E-03	--	--	na	3.4E-01	--	--	--	--	--	--	--	--	--	--	na	3.4E-01
Hexachlorobutadiene[c]	0	--	--	na	5.0E+02	--	--	na	2.2E+04	--	--	--	--	--	--	--	--	--	--	na	2.2E+04
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	na	1.3E-01	--	--	na	5.7E+00	--	--	--	--	--	--	--	--	--	--	na	5.7E+00
Hexachlorocyclohexane Beta-BHC[c]	0	--	--	na	4.6E-01	--	--	na	2.0E+01	--	--	--	--	--	--	--	--	--	--	na	2.0E+01
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	na	na	6.3E-01	2.9E+00	--	na	2.8E+01	--	--	--	--	--	--	--	--	2.9E+00	--	na	2.8E+01
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	2.1E+05	--	--	--	--	--	--	--	--	--	--	na	2.1E+05
Hexachloroethane[c]	0	--	--	na	8.9E+01	--	--	na	3.9E+03	--	--	--	--	--	--	--	--	--	--	na	3.9E+03
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	6.8E+00	na	--	--	--	--	--	--	--	--	--	--	6.8E+00	na	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	na	4.9E-01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone[c]	0	--	--	na	2.6E+04	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	3.9E+01	4.7E+00	na	--	1.2E+02	1.6E+01	na	--	--	--	--	--	--	--	--	--	1.2E+02	1.6E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	3.4E-01	na	--	--	--	--	--	--	--	--	--	--	3.4E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	4.3E+00	2.6E+00	na	6.2E-01	--	--	--	--	--	--	--	--	4.3E+00	2.6E+00	na	6.2E-01
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	4.9E+04	--	--	--	--	--	--	--	--	--	--	na	4.9E+04
Methoxychlor	0	--	3.0E-02	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.6E+05	--	--	--	--	--	--	--	--	--	--	na	2.6E+05
Nickel	0	8.7E+01	1.0E+01	na	4.6E+03	2.7E+02	3.4E+01	na	5.6E+04	--	--	--	--	--	--	--	--	2.7E+02	3.4E+01	na	5.6E+04
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	2.3E+04	--	--	--	--	--	--	--	--	--	--	na	2.3E+04
N-Nitrosodimethylamine[c]	0	--	--	na	8.1E+01	--	--	na	3.6E+03	--	--	--	--	--	--	--	--	--	--	na	3.6E+03
N-Nitrosodiphenylamine[c]	0	--	--	na	1.6E+02	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
N-Nitrosodi-n-propylamine[c]	0	--	--	na	1.4E+01	--	--	na	6.2E+02	--	--	--	--	--	--	--	--	--	--	na	6.2E+02
Parathion	0	6.5E-02	1.3E-02	na	--	2.0E-01	4.4E-02	na	--	--	--	--	--	--	--	--	--	2.0E-01	4.4E-02	na	--
PCB-1016	0	--	1.4E-02	na	--	--	4.8E-02	na	--	--	--	--	--	--	--	--	--	--	4.8E-02	na	--
PCB-1221	0	--	1.4E-02	na	--	--	4.8E-02	na	--	--	--	--	--	--	--	--	--	--	4.8E-02	na	--
PCB-1232	0	--	1.4E-02	na	--	--	4.8E-02	na	--	--	--	--	--	--	--	--	--	--	4.8E-02	na	--
PCB-1242	0	--	1.4E-02	na	--	--	4.8E-02	na	--	--	--	--	--	--	--	--	--	--	4.8E-02	na	--
PCB-1248	0	--	1.4E-02	na	--	--	4.8E-02	na	--	--	--	--	--	--	--	--	--	--	4.8E-02	na	--
PCB-1254	0	--	1.4E-02	na	--	--	4.8E-02	na	--	--	--	--	--	--	--	--	--	--	4.8E-02	na	--
PCB-1260	0	--	1.4E-02	na	--	--	4.8E-02	na	--	--	--	--	--	--	--	--	--	--	4.8E-02	na	--
PCB Total[c]	0	--	--	na	1.7E-03	--	--	na	7.5E-02	--	--	--	--	--	--	--	--	--	--	na	7.5E-02

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	8.2E+01	2.4E-02	2.0E-02	na	3.6E+03	--	--	--	--	--	--	--	--	**2.4E-02**	**2.0E-02**	**na**	**3.6E+03**
Phenol	0	--	--	na	4.6E+06	--	--	na	5.6E+07	--	--	--	--	--	--	--	--	--	--	**na**	**5.6E+07**
Pyrene	0	--	--	na	1.1E+04	--	--	na	1.3E+05	--	--	--	--	--	--	--	--	--	--	**na**	**1.3E+05**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	**na**	--
Gross Alpha Activity	0	--	--	na	1.5E+01	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	**na**	**1.8E+02**
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.9E+01	--	--	--	--	--	--	--	--	--	--	**na**	**4.9E+01**
Strontium-90	0	--	--	na	8.0E+00	--	--	na	9.8E+01	--	--	--	--	--	--	--	--	--	--	**na**	**9.8E+01**
Tritium	0	--	--	na	2.0E+04	--	--	na	2.4E+05	--	--	--	--	--	--	--	--	--	--	**na**	**2.4E+05**
Selenium	0	2.0E+01	5.0E+00	na	1.1E+04	6.1E+01	1.7E+01	na	1.3E+05	--	--	--	--	--	--	--	--	**6.1E+01**	**1.7E+01**	**na**	**1.3E+05**
Silver	0	7.6E-01	--	na	--	2.3E+00	--	na	--	--	--	--	--	--	--	--	--	**2.3E+00**	--	**na**	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	**na**	--
1,1,2,2-Tetrachloroethane [C]	0	--	--	na	1.1E+02	--	--	na	4.9E+03	--	--	--	--	--	--	--	--	--	--	**na**	**4.9E+03**
Tetrachloroethylene [C]	0	--	--	na	8.9E+01	--	--	na	3.9E+03	--	--	--	--	--	--	--	--	--	--	**na**	**3.9E+03**
Thallium	0	--	--	na	6.3E+00	--	--	na	7.7E+01	--	--	--	--	--	--	--	--	--	--	**na**	**7.7E+01**
Toluene	0	--	--	na	2.0E+05	--	--	na	2.4E+06	--	--	--	--	--	--	--	--	--	--	**na**	**2.4E+06**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	**na**	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	7.5E-03	2.2E+00	6.8E-04	na	3.3E-01	--	--	--	--	--	--	--	--	**2.2E+00**	**6.8E-04**	**na**	**3.3E-01**
Tributyltin	0	4.6E-01	6.3E-02	na	--	1.4E+00	2.2E-01	na	--	--	--	--	--	--	--	--	--	**1.4E+00**	**2.2E-01**	**na**	--
1,2,4-Trichlorobenzene	0	--	--	na	9.4E+02	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	**na**	**1.1E+04**
1,1,2-Trichloroethane [C]	0	--	--	na	4.2E+02	--	--	na	1.9E+04	--	--	--	--	--	--	--	--	--	--	**na**	**1.9E+04**
Trichloroethylene [C]	0	--	--	na	8.1E+02	--	--	na	3.6E+04	--	--	--	--	--	--	--	--	--	--	**na**	**3.6E+04**
2,4,6-Trichlorophenol [C]	0	--	--	na	6.5E+01	--	--	na	2.9E+03	--	--	--	--	--	--	--	--	--	--	**na**	**2.9E+03**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	**na**	--
Vinyl Chloride [C]	0	--	--	na	6.1E+01	--	--	na	2.7E+03	--	--	--	--	--	--	--	--	--	--	**na**	**2.7E+03**
Zinc	0	5.6E+01	5.8E+01	na	6.9E+04	1.7E+02	2.0E+02	na	8.4E+05	--	--	--	--	--	--	--	--	**1.7E+02**	**2.0E+02**	**na**	**8.4E+05**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	5.2E+04
Arsenic	3.1E+02
Barium	na
Cadmium	1.2E+00
Chromium III	7.7E+01
Chromium VI	2.0E+01
Copper	7.2E+00
Iron	na
Lead	9.6E+00
Manganese	na
Mercury	6.2E-01
Nickel	2.1E+01
Selenium	1.0E+01
Silver	9.4E-01
Zinc	6.8E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Mixing Zone Predictions for Waterford WWTF Jun-Nov

Effluent Flow = 0.058 MGD
Stream 7Q10 = 0.14 MGD
Stream 30Q10 = 0.28 MGD
Stream 1Q10 = 0.12 MGD
Stream slope = 0.125 ft/ft
Stream width = 9 ft
Bottom scale = 2
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .0426 ft
Length = 1468.9 ft
Velocity = .7987 ft/sec
Residence Time = .0213 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .0589 ft
Length = 1117.32 ft
Velocity = .9878 ft/sec
Residence Time = .0131 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .04 ft
Length = 1546.37 ft
Velocity = .7656 ft/sec
Residence Time = .5611 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

Attachment 6

Mixing Zone Predictions for Waterford WWTF Dec-May

Effluent Flow = 0.058 MGD
Stream 7Q10 = 1.6 MGD
Stream 30Q10 = 2.8 MGD
Stream 1Q10 = 1.1 MGD
Stream slope = 0.125 ft/ft
Stream width = 12 ft
Bottom scale = 2
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .129 ft
Length = 1027.14 ft
Velocity = 1.6577 ft/sec
Residence Time = .0072 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .1795 ft
Length = 775.81 ft
Velocity = 2.0543 ft/sec
Residence Time = .0044 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .1039 ft
Length = 1233.89 ft
Velocity = 1.4383 ft/sec
Residence Time = .2383 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

Analysis of the Water[illegible]rd WWTP (June-Nov) efflue[illegible] data for Ammonia
Averaging period for standard = 30 days

The statistics for Ammonia are:

Number of values	= 1
Quantification level	= .2
Number < quantification	= 0
Expected value	= 10
Variance	= 36.00001
C.V.	= .6
97th percentile	= 24.33418
Statistics used	= Reasonable potential assumptions - Type 2 data

The WLAs for Ammonia are:

Acute WLA	= 57
Chronic WLA	= 10.4
Human Health WLA	= ----

Limits are based on chronic toxicity and 4 samples/month, 1 samples/week

Maximum daily limit	=	20.98377	
Average weekly limit	=	20.98377	21.0
Average monthly limit	=	14.34714	14.3

Note: The maximum daily limit applies to industrial dischargers
The average weekly limit applies to POTWs
The average monthly limit applies to both.

The Data are
10

Attachment 7

Analysis of the Water[illegible]d WWTP (Dec-May) effluen[illegible]ata for Ammonia
Averaging period for standard = 30 days

The statistics for Ammonia are:

Number of values	= 1
Quantification level	= .2
Number < quantification	= 0
Expected value	= 10
Variance	= 36.00001
C.V.	= .6
97th percentile	= 24.33418
Statistics used	= Reasonable potential assumptions - Type 2 data

The WLAs for Ammonia are:

Acute WLA	= 371
Chronic WLA	= 82.2
Human Health WLA	= ----

NO LIMIT IS REQUIRED FOR Ammonia

The Data are
10

9/5/2008 4:01:44 PM

Facility = Waterford WWTF
Chemical = TRC
Chronic averaging period = 4
WLAa = 0.058
WLAc = 0.038
Q.L. = .1
# samples/mo. = 30
# samples/wk. = 8

Summary of Statistics:

observations = 1
Expected Value = .2
Variance = .0144
C.V. = 0.6
97th percentile daily values = .486683
97th percentile 4 day average = .332758
97th percentile 30 day average= .241210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.55778417940228E-02
Average Weekly limit = 3.31524652936036E-02
Average Monthly LImit = 2.75455546352073E-02

The data are:

0.2

Attachment 8

Commonwealth of Virginia

STATE WATER CONTROL BOARD

P. O. Box 11143, 2111 N. Hamilton St., Richmond, Va. 23230 (804) 770-2241

Please Reply To: *Northern Virginia Regional Office*
P. O. Box 307
Springfield, Virginia 22150

5515 Cherokee Avenue, Suite 404
Alexandria, Virginia 22312
(703) 750-9111

Potomac Basin

Loudoun Co.

October 23, 1973

Lac 6/2/93

90% BOD removal

Charlie,

According to my calculations, 24 mg/l in the final effluent will not be sufficient. 91% is marginal. 92% works out. Give me a call this afternoon if you wish to discuss this. *

19.2 mg/L 6/2/93 Lac

Gary

Gary

South Fork Catoctin Creek at the Route 662 Bridge

Depth 6"-24"
Width 25 ft.
Flow 1 ft. per 5 sec.
Air Temp. 23°c
Water Temp. 50°f
DO. 7.7 mg/l

GNM/rd

* Although the model indicates an effluent limitation of 19.2 mg/l BOD_5, the permit was issued with a BOD_5 effluent limitation of 24 mg/l.

The effluent limitation of 24 mg/l has not degraded water quality in the receiving stream and will remain in the permit, 6/2/93 Lac

Attachment 9

IEMORANDUM

State Water Control Board

2111 North Hamilton Street P. O. Box 11143 Richmond, VA. 2323

SUBJECT: Waterford STP SAA

TO:

FROM: John McClain and Gary Moore

DATE: October 23, 1973

COPIES:

D.A. above POD on South Fork = 27.56 $mi.^2$
D.A. of North Fork above the confluence of North Fork and South Fork = 18.15 $mi.^2$
D.A. between POD and confluence of North and South Forks of Catoctin Creek=.91 $mi.^2$

Critical discharge = .007 cfs/sq.mi. (Goose Creek near Leesburg)

*Q of South Fork Catoctin Creek at POD = .1244 MGD
Q of North Fork at confluence with South Fork =.0819 MGD
Q of South Fork between POD and confluence of North and South Forks =.0041 MGD

Distance from POD to confluence of North and South Forks = 1.2 mi.
Slope between POD to confluence of North and South Forks = 10/6336 = .0015 ft/ft

Velocity of Catoctin Creek = .2 ft. $sec.^{-1}$

Ka_{30} South Fork = Ka_{20} * 1.22 = 1.5 * 1.22 = 1.83 day^{-1}

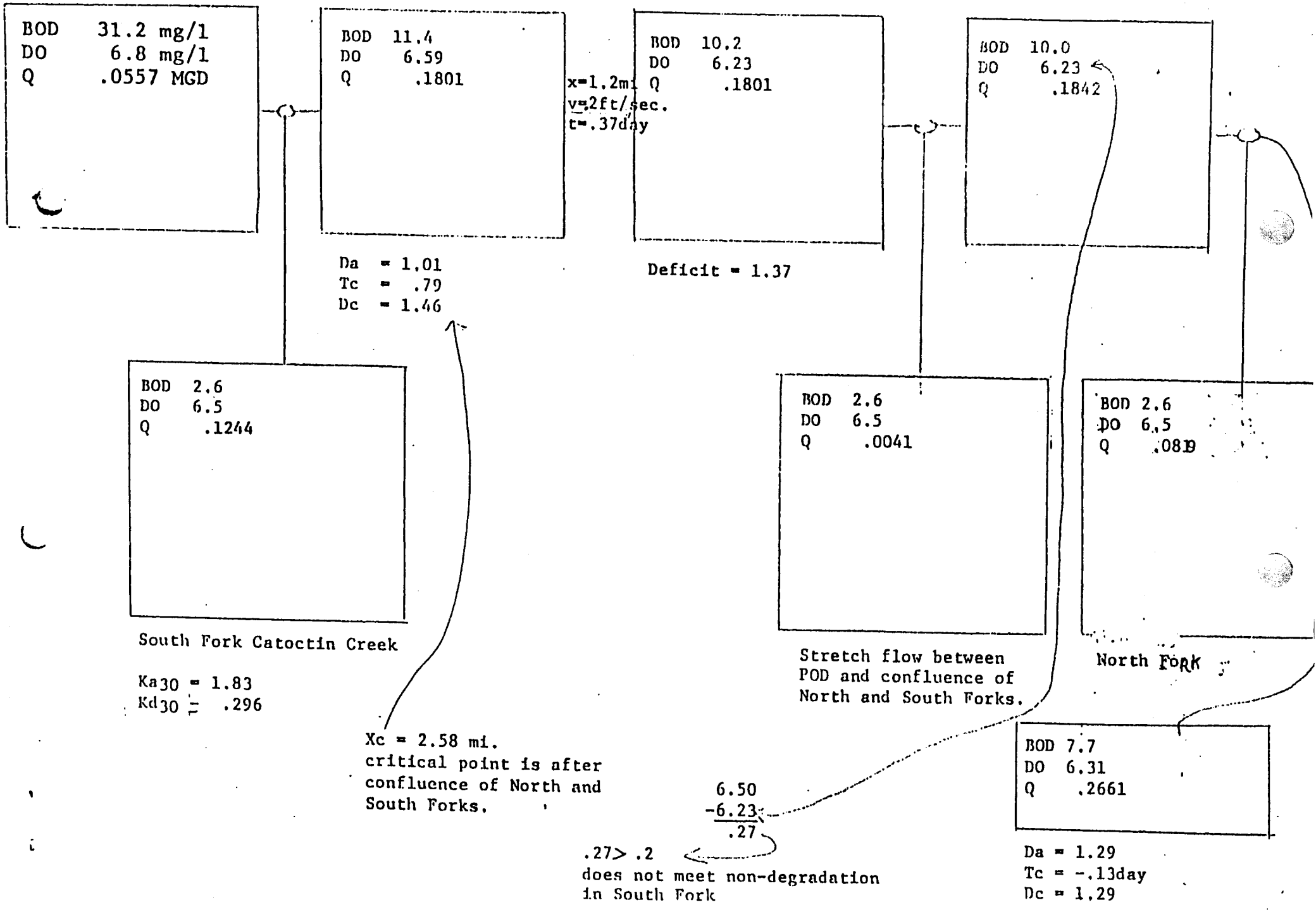
$Kd_{30} = Kd_{20}$ * 1.48 = 2 * 1.48 = .296 day^{-1}

* 7Q10 = 0.1244 MGD. The new 7Q10 (1993) is 0.37 MGD.

GM:by

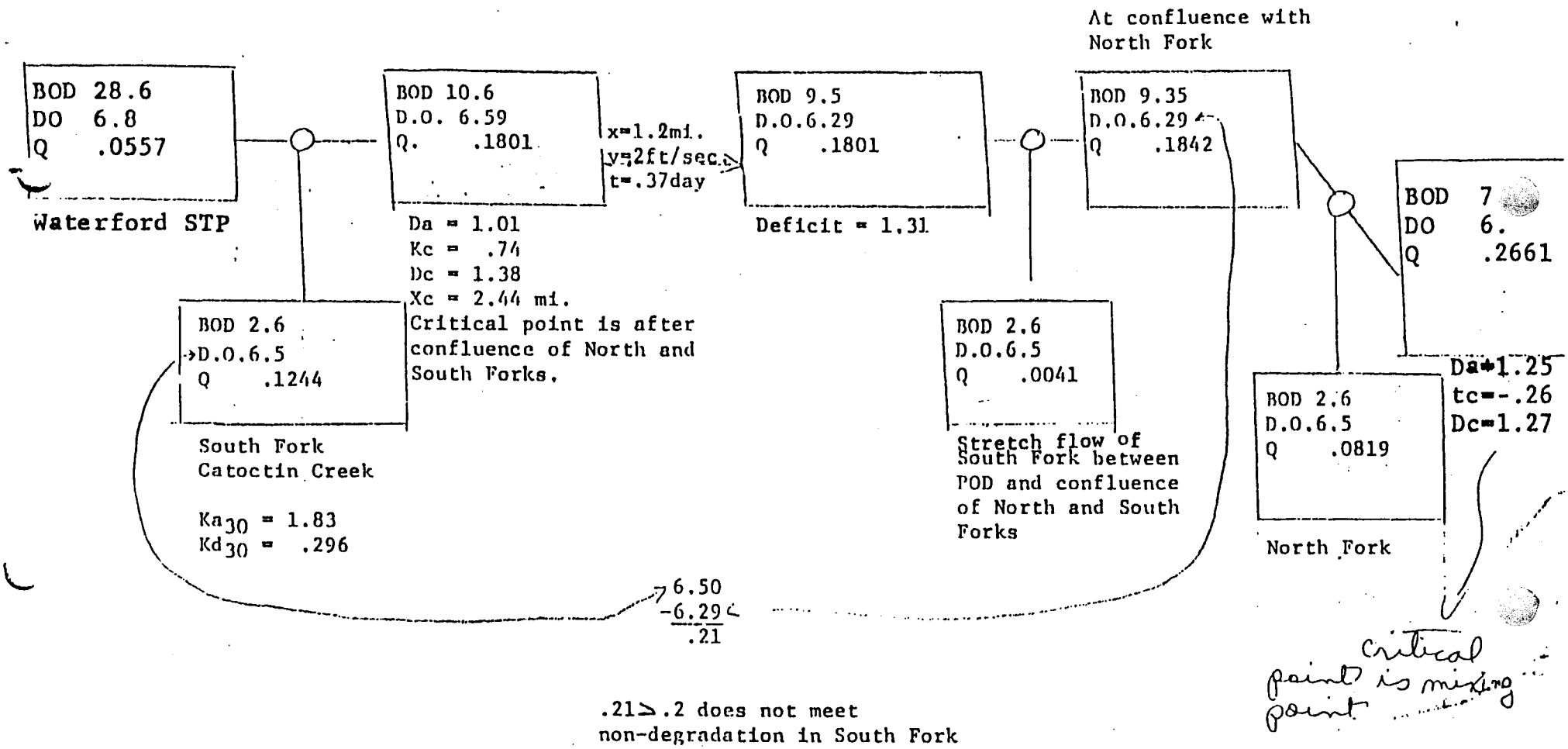
90% BOD Removal= 24mg/l
90% D.O. Saturation in effluent

FLOW DIAGRAM FOR WATERFORD STP PROPOSAL



91% Removal=22mg/l BOD
90% D.O. Saturation=6.8mg/l

WATERFORD STP

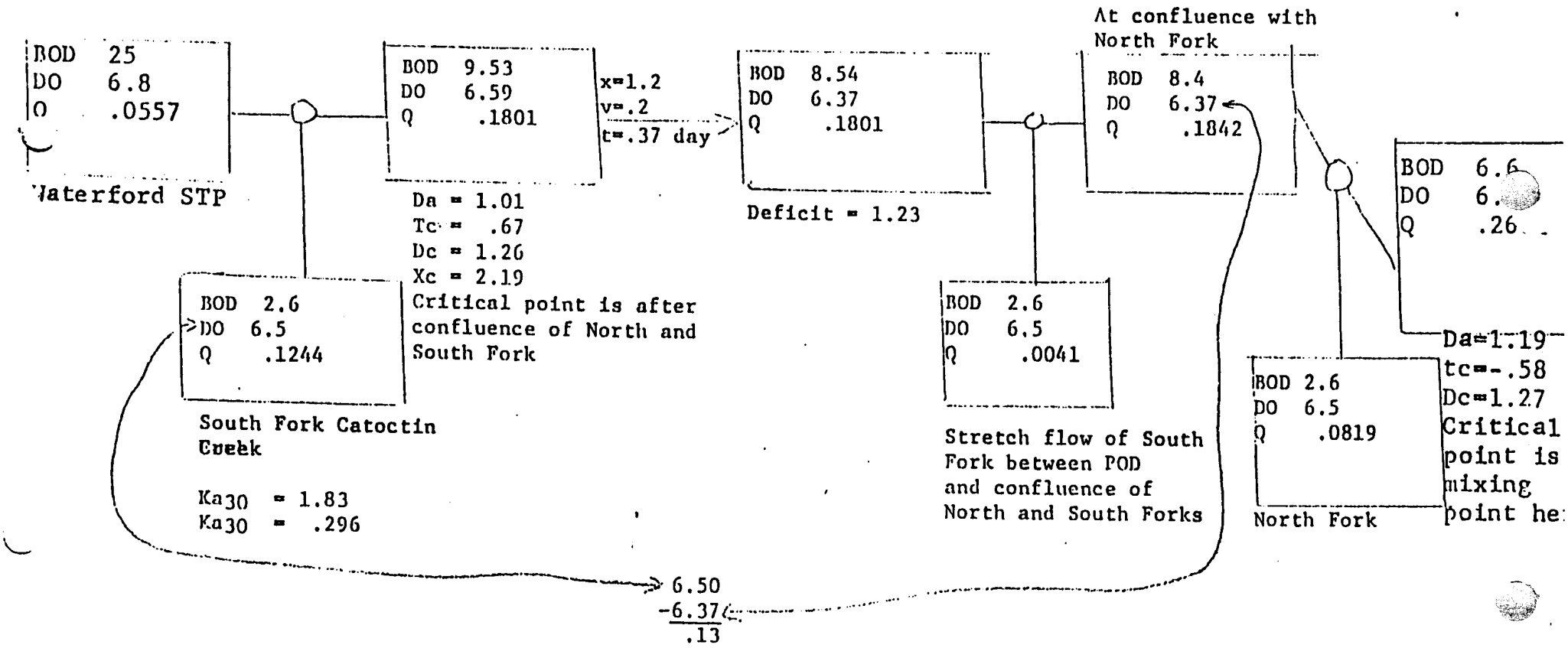


.21 > .2 does not meet non-degradation in South Fork

92% Removal=19.2 mg/l BOD in effluent

90% DO Saturation in effluent 6.8mg/l

WATERFORD STP



meets non-degradation in South Fork.

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Waterford/Loudoun County, Virginia.

PUBLIC COMMENT PERIOD: October XXX, 2008 to 5:00 p.m. on November XXX, 2008

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

LOUDOUN WATER, P.O. BOX 4000, VA0060500: Todd Danielson, P.O. Box 4000, Ashburn, VA 20146, VA0060500

NAME AND ADDRESS OF FACILITY: Waterford WWTF, 40024 Old Wheatland Road, Waterford, VA 20197

PROJECT DESCRIPTION: Loudoun Water has applied for a reissuance of a permit for the public Waterford WWTF. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 0.058 million gallons per day into a water body. Sludge from the treatment process will be removed for treatment and disposal when necessary. The sludge will be disposed by a licensed contractor. The facility proposes to release the treated sewage in the South Fork Catoctin Creek in Waterford/Loudoun County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, BOD_5, Chlorine, Total Phosphorus, Total Suspended Solids, Ammonia, Dissolved Oxygen, *E. coli*, Fecal Coliform, and Flow.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment.
Name: Susan Oakes
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3863 E-mail: saoakes@deq.virginia.gov Fax: (703) 583-3821

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Waterford WWTF
NPDES Permit Number:	VA0060500
Permit Writer Name:	Susan Oakes
Date:	September 9, 2008

Major [ ] **Minor** [X] **Industrial** [] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?		X	
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?	X		
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	

10. Does the permit authorize discharges of storm water?		X	
I.B. Permit/Facility Characteristics – cont.	**Yes**	**No**	**N/A**
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs
(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?	X		
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?	X		
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

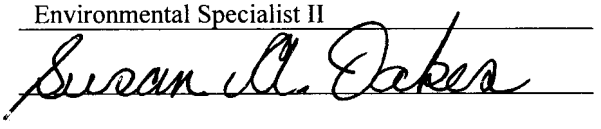
List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Susan A. Oakes
Title	Environmental Specialist II
Signature	
Date	September 9, 2008